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#11  
7/19/98

PATENT AND TRADEMARK OFFICE

Applicants: J. Joyce et al.

Serial No.: 08/409,122 - Case No.: 19425 . Art Unit:  
1815  
Filed: March 22, 1995 . Examiner:  
For: RECOMBINANT HUMAN PAPILLOMA- . Salimi, A.  
VIRUS TYPE 18 .

The Honorable Commissioner of Patents and Trademarks  
The Drawing Review Branch  
Washington, D.C. 20231

SUBMISSION OF FORMAL DRAWINGS

Dear Sir:

Enclosed please find seven pages of formal drawings for the above referenced case.

Respectfully submitted,

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Rahway, NJ 07065

Date: January 13, 1998

	10	20	30	40	50	60	
	ATGGCTTGCGGCCTAGTGACAATACCGTATACTTCCACCTCCTCTGTGGCAAGA						
1	M A L W R P S D N T V Y L P P P S V A R	20					
	70 80 90 100 110 120						
	GTTGTAAATACTGATGATTATGTGACTCGCACAGCATATTATCATGCTGGCAGCTCT						
21	V V N T D D Y V T R T S I F Y H A G S S	40					
	130 140 150 160 170 180						
	AGATTATTAACGTGGTAATCCATATTTAGGGTCCCTGCAGGTGGTGGCAATAAGCAG						
41	R L L T V G N P Y F R V P A G G G N K Q	60					
	190 200 210 220 230 240						
	GATATTCTAACGGTTCTGCATACCAATATAGAGTATTCGGGTGCAGTTACCTGACCCA						
61	D I P K V S A Y Q Y R V F R V Q L P D P	80					
	250 260 270 280 290 300						
	AATAAAATTGGTTACCTGATAATAGTATTTATAATCCTGAAACACAAACGTTAGTGTGG						
81	N K F G L P D N S I Y N P E T Q R L V W	100					
	310 320 330 340 350 360						
	GCCTGTGCTGGAGTGGAAATTGGCCGTGGTCAGCCTTAGGTGTTGGCCTAGTGGCAT						
101	A C A G V E I G R G Q P L G V G L S G H	120					
	370 380 390 400 410 420						
	CCATTTATAATAATTAGATGACACTGAAAGTTCCATGCCGCTACGTCTAATGTTCT						
121	P F Y N K L D D T E S S H A A T S N V S	140					
	430 440 450 460 470 480						
	GAGGACGTTAGGGACAATGTGCTGTAGATTATAAGCAGACACAGTTATGTATTTGGC						
141	E D V R D N V S V D Y K Q T Q L C I L G	160					
	490 500 510 520 530 540						
	TGTCCCCCTGCTATTGGGAACACTGGCTAAAGGCACTGCTTGTAAATCGCGTCCTTA						
161	C A P A I G E H W A K G T A C K S R P L	180					
	550 560 570 580 590 600						
	TCACAGGGCGATTGCCCTTAAAGAACAGTTGGAAAGATGGTGTATG						
181	S Q G D C P P L E L K N T V L E D G D M	200					
	610 620 630 640 650 660						
	GTAGATACTGGATATGGTGCCTGGACTTGTACATTGCAAGATACTAAATGTGAGGTA						
201	V D T G Y G A M D F S T L Q D T K C E V	220					
	670 680 690 700 710 720						
	CCATTGGATATTGTCAGTCTATTGTAATATCCTGATTATTTACAAATGTCTGCAGAT						
221	P L D I C Q S I C K Y P D Y L Q M S A D	240					
	730 740 750 760 770 780						
	CCTTATGGGATTCCATGTTTTGCTTACGACGTGAGCAGCTTTGCTAGGCATT						
241	P Y G D S M F F C L R R E Q L F A R H F	260					
	790 800 810 820 830 840						
	TGGAATAGGGCAGGTACTATGGGTGACACTGTGCCTCAATCCTTATATATTAAAGGCACA						
261	W N R A G T M G D T V P Q S L Y I K G T	280					

850 860 870 880 890 900  
 GGTATGCGTGCTTCACCTGGCAGCTGTGTATTCTCCCTCTCCAAGTGGCTCTATTGTT  
 281 G M R A S P G S C V Y S P S P S G S I V 300  
 910 920 930 940 950 960  
 ACCTCTGACTCCCAGTTGTTAATAAACCATATTGGTTACATAAGGCACAGGGTCATAAC  
 301 T S D S Q L F N K P Y W L H K A Q G H N 320  
 970 980 990 1000 1010 1020  
 AATGGTATCTGCTGGCATAATCAATTATTTGTTACTGTGGTAGATACCACTCGTAGTACC  
 321 N G I C W H N Q L F V T V V D T T R S T 340  
 1030 1040 1050 1060 1070 1080  
 AATTAAACAATATGTGCTCTACACAGTCTCCTGTACCTGGGCAATATGATGCTACCAAA  
 341 N L T I C A S T Q S P V P G Q Y D A T K 360  
 1090 1100 1110 1120 1130 1140  
 TTTAAGCAGTATAGCAGACATGTTGAAGAATATGATTGAGTTATTTTCAGTTATGTT  
 361 F K Q Y S R H V E E Y D L Q F I F Q L C 380  
 1150 1160 1170 1180 1190 1200  
 ACTATTACTTTAAGTGCAGATGTTATGTCCTATATTCAAGTATGAATAGCAGTATTTA  
 381 T I T L T A D V M S Y I H S M N S S I L 400  
 1210 1220 1230 1240 1250 1260  
 GAGGATTGGAACCTTGGTGTCCCCCCCCGCCAACTACTAGTTGGTGGATACATATCGT  
 401 E D W N F G V P P P P T T S L V D T Y R 420  
 1270 1280 1290 1300 1310 1320  
 TTTGTACAATCTGTTGCTATTACCTGTCAAAAGGATGCTGCACCAGCTGAAAATAAGGAT  
 421 F V Q S V A I T C Q K D A A P A E N K D 440  
 1330 1340 1350 1360 1370 1380  
 CCCTATGATAAGTTAAAGTTGGAAATGTGGATTAAAGGAAAGTTTCTTGGACTTA  
 441 P Y D K L K F W N V D L K E K F S L D L 460  
 1390 1400 1410 1420 1430 1440  
 GATCAATATCCCCCTGGACGTAATTTGGTCAGGCTGGATTGCGTCGCAAGCCCACC  
 461 D Q Y P L G R K F L V Q A G L R R K P T 480  
 1450 1460 1470 1480 1490 1500  
 ATAGGCCCTCGTAAACGTTCTGCTCCATCTGCCACTACGTCTTCTAAACCTGCCAAGCGT  
 481 I G P R K R S A P S A T T S S K P A K R 500  
 1510 1520  
 GTGCGTGTACGTGCCAGGAAGTAA  
 501 V R V R A R K \* 508

FIG. 1B

AMINO ACID VARIATIONS IN L1 PROTEIN OF HPV18				
	AMINO ACID POSITION IN L1			
	<u>30</u>	<u>88</u>	<u>283</u>	<u>338</u>
HPV18 PUBLISHED	P	T	P	P
HPV18 MERCK	R	N	R	R
#354 (CLINICAL INDIANA)	R	N	R	R
#556	R	N	R	R
#755	-	-	R	R
#697	-	-	R	R
#795	-	-	R	R
#23 (CLINICAL PENNSYLVANIA)	-	-	R	R

FIG.2

	10	20	30	40	50	60	
	ATGGTATCCCACCGTGCCGCACGACGCAAACGGGCTTCGGTGA	CTGACTGACTTATATAAAAACA					
1	M V S H R A A R R K R A S V T D L Y K T						20
	70 80 90 100 110 120						
	TGTAAACAATCTGGTACATGTCCATCTGATGTTGTTAATAAGGTAGAGGGCACCACGTTA						
21	C K Q S G T C P S D V V N K V E G T T L						40
	130 140 150 160 170 180						
	GCAGATAAAATATTGCAATGGTCAAGCCTTGGTATATTTTGGGTGGACTTGGCATAGGT						
41	A D K I L Q W S S L G I F L G G L G I G						60
	190 200 210 220 230 240						
	ACTGGAAGTGGTACAGGGGGTCGTACAGGGTACATTCCATTGGGTGGCGTTCCAATACA						
61	T G S G T G G R T G Y I P L G G R S N T						80
	250 260 270 280 290 300						
	GTTGTGGATGTCGGTCCCTACACGTCCAGTGGTTATTGAACCTGTGGGCCACAGAC						
81	V V D V G P T R P P V V I E P V G P T D						100
	310 320 330 340 350 360						
	CCATCTATTGTTACATTAATAGAGGACTCAAGTGGTACATCAGGTGCACCTAGGCCT						
101	P S I V T L I E D S S V V T S G A P R P						120
	370 380 390 400 410 420						
	ACTTTTACTGGCACGTCTGGTTGATATAACATCTGCTGGTACAACACACCTGCAGTT						
121	T F T G T S G F D I T S A G T T T P A V						140
	430 440 450 460 470 480						
	TTGGATATCACACCTTCGTCTACCTCTGTTCTATTCCACAACCAATTACCAATCCT						
141	L D I T P S S T S V S I S T T N F T N P						160
	490 500 510 520 530 540						
	GCATTTCTGATCCGCCATTATTGAAGTTCCACAAACTGGGGAGGTGTCAGGTAATGTA						
161	A F S D P S I I E V P Q T G E V S G N V						180
	550 560 570 580 590 600						
	TTTGGTGGTACCCCTACATCTGGAACACATGGGTATGAAGAAATACCTTACAAACATT						
181	F V G T P T S G T H G Y E E I P L Q T F						200
	610 620 630 640 650 660						
	GCTTCTCTGGTACGGGGAGGAACCCATTAGTAGTACCCATTGCCACTGTGCGGCGT						
201	A S S G T G E E P I S S T P L P T V R R						220
	670 680 690 700 710 720						
	GTAGCAGGTCCCCGCCCTTACAGTAGGGCCTACCAACAAGTGTCTGTGGCTAACCTGAG						
221	V A G P R L Y S R A Y Q Q V S V A N P E						240
	730 740 750 760 770 780						
	TTTCTTACACGTCCATCCTCTTAATTACCTATGACAACCCGGCCTTGAGCCTGTGGAC						
241	F L T R P S S L I T Y D N P A F E P V D						260
	790 800 810 820 830 840						
	ACTACATTAACATTGAGCCTCGTAGTAATGTTCCCTGATTCAAGATTATGGATATTAC						
261	T T L T F E P R S N V P D S D F M D I I						280

FIG. 3A

4

850 860 870 880 890 900  
 CGTTTACATAGGCCTGCTTAACATCCAGGCGTGGTACTGTGCGCTTAGTAGATTAGGT  
 281 R L H R P A L T S R R G T V R F S R L 300  
 910 920 930 940 950 960  
 CAAAGGGCAACTATGTTACCCGTAGCGGTACACAAATAGGTGCTAGGGTTCACTTTAT  
 301 Q R A T M F T R S G T Q I G A R V H F Y 320  
 970 980 990 1000 1010 1020  
 CATGATATAAGTCCTATTGCACCCCTCCCCAGAAATATATTGAAC TG CAGCCTT TAGTATCT  
 321 H D I S P I A P S P E Y I E L Q P L V S 340  
 1030 1040 1050 1060 1070 1080  
 GCCACGGAGGGACAATGGCTT GTTTGATATATATGCAGATGACATAGACCCCTGCAATGCC  
 341 A T E D N G L F D I Y A D D I D P A M P 360  
 1090 1100 1110 1020 1030 1040  
 GTACCATCGCGTCCCTACTACCTCCTCTGCAGTTCTACATATTGCCCACTATATCATCT  
 361 V P S R P T T S S A V S T Y S P T I S S 380  
 1150 1160 1170 1180 1190 1200  
 GCCTCTTCCTATAGTAATGTAACGGTCCCTTAAACCTCCTCTGGGATGTGCCTGTATAC  
 381 A S S Y S N V T V P L T S S W D V P V Y 400  
 1210 1220 1230 1240 1250 1260  
 ACGGGTCCCTGATATTACATTACCA CCTACTACCTCTGTATGGCCCATTTGATCACCCACA  
 401 T G P D I T L P P T T S V W P I V S P T 420  
 1270 1280 1290 1300 1310 1320  
 GCCCCTGCCTCTACACAGTATATTGGTATACATGGTACACATTATTATTGTGGCCATTA  
 421 A P A S T Q Y I G I H G T H Y Y L W P L 440  
 1330 1340 1350 1360 1370 1380  
 TATTATTTATTCTAAAAAGCGTAAACGTGTTCCCTATTTTTGCAAGATGGCTTGTG  
 441 Y Y F I P K K R K R V P Y F F A D G F V 460  
  
 GCGGCCTAG  
 461 A A \* 463

FIG. 3B

FIG.5

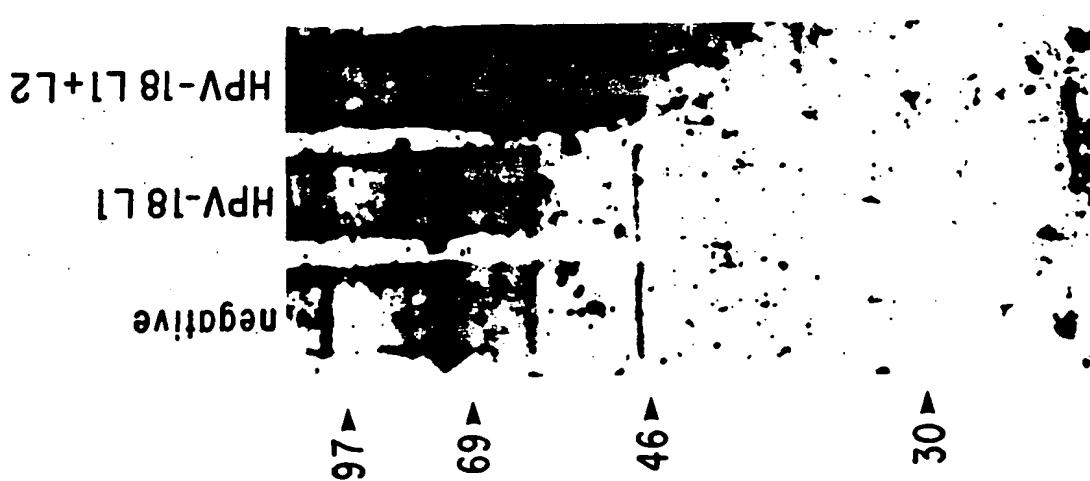


FIG.4





FIG. 6